

Supporting Ecological Understanding through In-Depth and Imaginative Study of a Place-Based Topic or Issue

Gillian Judson, Simon Fraser University, Canada

Abstract

Many have observed that the curriculum is a mile wide and scarcely an inch deep. This article provides a rationale for including in-depth study of a place-based/local topic within educational programs aimed at cultivating ecological understanding. Following a brief exploration of some of the obstacles to in-depth learning, it describes the ways in which in-depth and imaginative investigation can support ecological thinking. Consideration of beliefs and values concludes the piece; ideological and pedagogical factors will influence how teachers feel about implementing an imaginative, in-depth program of study and, ultimately, whether it becomes part of their professional practice.

Résumé

Nombreux sont ceux qui ont constaté qu'un programme d'études donné est vaste et pourtant très superficiel. Le présent article justifie l'intégration de l'étude approfondie d'un sujet local dans les programmes visant la compréhension écologique. Après une courte revue de certains des obstacles entravant l'apprentissage approfondi, l'article décrit les moyens par lesquels la recherche approfondie et imaginative peut appuyer le raisonnement écologique. En conclusion, on y examine les croyances et les valeurs en la matière : des facteurs idéologiques et pédagogiques auront une influence sur l'opinion des enseignants quant à la mise en œuvre d'un programme d'études imaginatif et approfondi et, en définitive, sur leur choix de s'en servir dans l'exercice de leur profession.

Keywords: imagination, in-depth learning, ecological understanding, engagement

Introduction [or, From Procrastination to Action]

For quite some time I have been meaning to provide a rationale for the value of in-depth learning—specifically, the long-term study of a place-based/local topic or issue—as part of an ecological education program. Until now I have not actually put this rationale to “paper.” So why am I writing this article now? Well, I was recently reading the second volume of *The Canadian Journal of Environmental Education* published back in 1997—one receives such gifts when colleagues are forced to move offices and are desperate to purge rather than haul unnecessary stuff. Within this volume I came across, rather serendipitously I think, an article by Robert Stevenson entitled “Developing

Habits of Environmental Thoughtfulness through the In-depth Study of Select Environmental Issues” (Stevenson, 1997). In the article Stevenson suggests in-depth study should be part of an environmental¹ education program because one needs depth of knowledge for cultivating the kinds of habits of mind that are suitable to deal with complex environmental issues. He argues that in-depth study of particular kinds of issues can support habits of mind he collectively calls “environmental thoughtfulness.” I felt myself nodding in agreement and support for what Stevenson was proposing; my procrastination finally turned to action.

I began to unearth my deeply rooted (and, until this point, largely unexamined) belief that pedagogy aiming to develop ecological understanding should include depth of study. Of course, I bring to this process a plethora of experiences, beliefs, and values that influence my work. While some anchor me silently to certain ways of being and doing, others are much more obvious in my scholarship and teaching. The idea that imagination has a significant role to play in ecological pedagogy is one idea that stands out, taking a central, visible, position in my work. This article explores both in-depth study and imagination. I describe a particular model of in-depth study that aligns with the principles of imagination-focused pedagogy. I aim to show that within an imagination-focused context, the value of in-depth study and its contributions to learning increase exponentially.

A Rationale for In-Depth and Imaginative Study

The way planning happened in 1997—and the way we continue to approach it today in classrooms everywhere—is not conducive to cultivating the emotional and imaginative engagement with nature that lies at the heart of ecological understanding (Judson, 2010, 2015). Pedagogical approaches that marginalize emotional and imaginative engagement—by this I mean those more objectives-based and increasingly standardized ways of thinking most teachers have been trained to use—are inadequate for transforming human thinking and behaviour in relation to the natural world; they ignore the emotional and imaginative nature of learning and neglect the *feeling* that lies at the core of ecological understanding.

At the core of what is meaningful for human beings everywhere is emotion. The aspects of the world that are meaningful to us, whether in the social group, family, or culture, evoke our emotions and imaginations. We are, as David Krech suggests, “perfinkers”; we perceive, feel, and think together (cited in Egan, 2005). In an imaginative and ecological approach to teaching,² the *Feeling* principle acknowledges the importance for learning and for ecological understanding of emotional and imaginative engagement.

In practice, the *Feeling* principle means taking a “cognitive tools” approach to teaching. Examples of cognitive tools include the story form, vivid mental

imagery evoked from words, a sense of mystery, rhyme, rhythm, and pattern, association with transcendent qualities, and a sense of wonder.³ It is in the context of a cognitive tool-focused approach to teaching—features of which are described in more detail later in this article—that I consider how in-depth study can support the “environmental thoughtfulness” Stevenson advocates, as well as how it can support the development of a sense of place, knowledge, and experience to fuel the imagination and necessary re-imagining of the human-nature relationship.

Of course, the idea of affording students opportunities for self-directed investigation of some aspect of the local natural world has a long history and connects to an array of theoretical and practical work within ecological, place-based, and inquiry-based approaches to learning (e.g., Duhn, 2012, Gruenewald, 2003a, 2003b; Gruenewald & Smith, 2008; O’Sullivan & Taylor, 2004; Sobel, 1996, 1998, 1999, 2004; Smith, 1995, 2002, 2007; Smith & Williams, 1999; Stone & Barlow, 2005; Woodhouse & Knapp, 2000). Similarly, there are many project-based learning initiatives across multiple disciplines that have been shown to support a range of cognitive and emotional outcomes for students that include the development of critical thinking capacities, enhanced collaboration skills, emotional engagement in learning, and enhanced community relationships (see www.bie.org; Pedaste et al., 2013). Some, such as the Community Mapping Program, are specifically place-based projects that support community partnerships and service to the community (Andersen, 2011). There is also fertile theoretical and practical work around the role of imagination in ecological thinking, and the development of new ways of being and knowing (e.g., Blenkinsop, 2012; Derby, Blenkinsop, Telford, Piersol, & Caulkins, 2013; Fettes, 2013; Piersol, 2010, 2014). For the most part, these authors contribute to theoretical understanding of imagination’s role in learning for ecological understanding, rather than address the practical dimensions of imaginative engagement or how teaching can both imaginatively and ecologically engage students in learning all facets of the curriculum. One notable exception is Phillip Payne’s (2010) conception of what he calls a “slow” pedagogy based on the engagement of imagination through embodied, oral storytelling within place-focused, experiential activity.⁴ It is my hope that this article can contribute to ongoing conversations in education, and ecological education in particular, by examining the idea of in-depth study in conjunction with a “cognitive tools” or imagination-focused approach to teaching.

Obstacles to In-Depth Study: Insights from Robert Stevenson and David Jardine

Writing in 1997, Stevenson identifies a “coverage problem” in education generally and particularly in environmental education. In a brief discussion of the historical development of the field, he characterizes conceptions of

environmental education in the 20th century as “consistently broadening in scope” (p. 184)—schools faced an increasingly long list of topics and issues to deal with as environmental education was developed as a field and as more examples of ecological problems were coming to light. The main response to this expanding scope of environmental education was a push for increasing “coverage” in environmental education programs (Stevenson, 1997). Stevenson argues that due to this expansive curriculum, only a few issues are addressed in schools. Moreover, those that are addressed tend to be the most widely recognized ecological issues and problems (e.g., climate change or extinction of wildlife), and often fail to engage students in any real-life, real-time environmental issue analysis. He argues that the few topics or issues that are addressed are not treated in ways that evoke or develop students’ analytical or critical thinking: “environmental problems are superficially treated with students developing little understanding of the complexities involved and little capacity for thoughtful decision-making on environmental issues they may encounter” (p. 184). Stevenson evokes an image of teachers under pressure, faced with heavy curricular demands that lead them “to gloss over the complexities and nuances of concepts and to omit alternative and opposing viewpoints on problematic issues” (p. 190).

Teachers have little time to dwell meaningfully on topics; students have little opportunity “to engage in careful and sustained thought about the assumptions, evidence and inference underlying knowledge claims; to analyze the values underlying particular viewpoints; and to explore the personal and social significance of a topic or issue” (p. 190). When it comes to this focus on “coverage” or, at least, the pressure teachers feel to “get through” their curricula, little has changed since 1997. While there have been many developments in the field since 1997—and the emergence of many related approaches to education interested in planetary well-being—students experience expansive curriculum (eco or regular) with few opportunities for in-depth study; teachers continue to feel the pressure to “get through” a dense curriculum.

Stevenson (1997) notes that while superficial coverage may result in better players of *Trivial Pursuit*, an emphasis on breadth of content is inadequate to produce “thoughtfulness” in students of the kind and degree that will allow them to critically appraise situations and to think and act in ways that value the health of all the beings on the earth. So what will? His proposal: an in-depth and authentic⁵ study of an environmental issue in which students:

identify an issue within their local environment that is meaningful or significant to them; conduct a sustained, interdisciplinary inquiry or investigation into that issue; and by constructing their own understand and values, develop a defensible position on the issue, and make judgments about appropriate actions that should be taken. (p. 191)

Through in-depth study, students experience a slower pace and are afforded the opportunity to develop thinking skills (analytical, critical, based on depth of

knowledge) and a particular kind of “mindset” (environmental thoughtfulness) necessary to address ecological issues.

There was another gift in the stack of journals I received. This one was in the form of an article by David Jardine (Jardine, 1996) in which he expresses an idea that one sees interwoven in much of his subsequent work: ecological understanding requires us to slow down and find time to dwell on topics as part of learning.

Writing in 1996, Jardine expresses a concern similar to Stevenson’s: a lack of “time” in learning negatively impacts students’ ability to develop what he calls “ecological mindfulness.” Jardine suggests we need to slow the pace of schools—an idea we hear echoed in this century by many folks including those writing at the Center for Ecoliteracy (Holt, 2005; Waters, 2005). He characterizes schooling as frantic and unsettled; teachers are constantly “getting kids to run from place to place, activity to activity” (p. 49) in a state of “pedagogical hyperactivity.” For Jardine, a frantic, hyper-paced curriculum is antithetical to ecological understanding: (pedagogical) hyperactivity “precludes the slowing of pace and the broadening of attention to relations and interdependencies that love and devotion to a place require of us” (p. 49). In this fast-paced context, there is little opportunity for students to learn anything in depth and we diminish possibilities for deep understanding. Nothing much has changed if you consider the high-paced engagement provided by various media devices or the jam-packed after-school and weekend schedules many students face. We endlessly feed the activity beast without realizing what we may be losing in the process (Jardine, 1996).

Undoubtedly the “speed” at which students run at school has something to do with the pressure teachers feel to get through a massive curriculum. It will also have something to do with the idea that variety is good and students need different forms of learning; they all have special needs. I do not doubt that. But my hunch is that our inclination to go wide with our topics and keep things constantly changing has to do with our assumption that students need constant stimulation in order to “stay interested.” While this might be partly true, it may more importantly be the case that the ways students are learning are simply not adequately engaging their emotions and imaginations. We can increase student engagement and make learning meaningful for them if we bring the imagination into the foreground and centralize in teaching of all topics the students’ imaginative lives. In the context of education for ecological understanding, that emotional connection is absolutely crucial—it is not only required to support learning, but to solidify the emotional and imaginative core of feeling and living with a sense of connection to the Earth.

What In-Depth and Imaginative Study can Contribute to Ecological Education

In-depth and imaginative study can make distinctive contributions to the goal of developing ecological understanding. These include enhanced knowledge of

some aspect of the natural world and ongoing opportunities for personal engagement; both are ingredients of a sense of place (Ardoin, 2006; Orr, 2005; Traina, 1995). Knowledge of the world also offers fodder for the imagination and can contribute to the development of cognitive abilities that include intellectual humility and systemic thinking capacities, enabling us to differently situate ourselves in the world and to view problems and issues from multiple perspectives. The in-depth study of a local natural or place-based topic—what might at first be considered a strong example of “disciplinary” focused learning (and, in this sense parochial)—can actually afford students the opportunity to develop a rich, interdisciplinary understanding of the world.

(a) The Nature of Knowledge

A problem with a broad curriculum: learning many topics superficially does not give students a sense of the nature of knowledge itself; it is only through in-depth investigation that we can see the scope of knowledge and its interconnectedness. Gaining a sense of how knowledge is connected is part of a wider and richer sense of how the world actually works: everything is connected. There is a reason why so many ecological metaphors emphasize relationship. What we can learn from nature is that we live within a relational world; nothing exists in a vacuum. Through in-depth study of a local place-based topic, some of those interconnections can become real for students. Through in-depth study they come to understand how seemingly disconnected topics and ideas are inseparable. In-depth study allows students to learn *a lot* about some aspect of the world around them. Better informed, they can be more sensitive to the complexity of issues and topics.

Stevenson suggests that for the in-depth study to be valuable for environmental education and student thinking it *must* result in a product for local use or some locally directed action. Students must *do* something specific with what they have learned. He argues that “depth for the sake of depth is no more valuable than coverage for the sake of coverage” (p. 192). While I do not disagree that using students’ knowledge can be of some good and can engage students’ imaginations through this sense of agency, I think depth of knowledge can be valuable for the reasons I have just expressed. Depth is valuable because it gives us a new sense of knowledge itself—one aspect being the interconnectedness of all knowledge—which supports eco understanding.

(b) Sense of Place

In-depth study of a particular local topic affords students the opportunity to develop emotional connection to place; this emotional connection lies at the root of ecological understanding. Students can come to know more about some feature or aspect of their place than anyone else and they can do this through direct contact and projects/avenues of exploration that interest them. If, as many

suggest, we will not try to save what we do not love, then by affording students time in school to reconnect with something local in ways they want and that develop emotional connections for them, perhaps we can facilitate a sense of place and the emotional core of ecological understanding.

(c) Fodder for the Imagination

In-depth study provides students fodder for their imaginations. The imagination only works with what knowledge and experience has been accumulated, so we can enhance imaginative capacity by providing students with a deeper sense of knowledge and richer experiences. We would be ill-equipped to resolve problems of any magnitude without richly developed imaginations and a lot of knowledge to think with. We should be educated in institutions that consider it a central aim of education to equip students with good thinking skills and a lot of meaningful knowledge about the world around them.

(d) Intellectual Humility

Intellectual humility comes from spending years studying a topic and realizing one has only scratched the surface. I fear many students graduate from secondary school, and even from college and other post-secondary institutions, with too much confidence in what they know about the world and how it works. Over-confidence can stem, in part, from a lack of knowledge or, at least, a lethal combination of some knowledge in a field, short-sightedness, and a belief that the world is actually divided into discreet segments or sections. By studying something long-term we may keep this over-confidence in check and gain a needed sense of intellectual humility; we cannot be sure our current responses to ecological issues will work. We need humility that comes from understanding that our “answers” are, at best, our “best guesses,” based on the limited knowledge we have.

(e) Systemic Thinking

Depth of knowledge that can be gained through long-term study is also required to think systemically about the world. While I appreciate the value of analytical and critical thinking skills for addressing ecological issues, I think part of the problem we have as human beings who continue to think with overly mechanistic and industrial kinds of metaphors for the Earth, is that we are too good at taking things apart or, at least, we feel we can dissect problems and in this way come up with clarity and solutions (Judson, 2014). What ecological understanding can teach us is that the world is a nest of interconnected systems; the whole is more than the sum of its parts and so we need to be able to think more broadly and systemically if we are going to think better when it comes to ecological issues and challenges. Depth of knowledge can also provide the kind of understanding

of a topic and a sense of its implications in *other* topics that is required to take a systems view of the earth.

Imaginative Education (IE): Employing Cognitive Tools to Support Student Engagement

In order to emotionally and imaginatively engage our students in learning all aspects of the curriculum, it is crucial to understand the distinctive features of their emotional and imaginative lives. *But what is it that emotionally engages children/adolescents? How are their imaginations engaged in the world around them?* These are questions that Kieran Egan (1988a, 1988b, 1992, 1997, 2005) explores in detail and that he integrates into an educational theory called Imaginative Education.⁶

Imaginative Education pairs a theoretical understanding of the imagination's role in learning (e.g., Egan, 1997) with a comprehensive practical discussion of how to engage imagination in learning (e.g., Egan, 2005). Of central importance for this article are Egan's (1988a, 1992, 1997, 2005) insights into how students' imaginations engage differently in the world as they acquire oral, written, and increasingly theoretical uses of language. These different forms of language provide them with "sets" of learning tools or what Egan calls, following Lev Vygotsky (1962, 1978), "cognitive tools" that shape specific imaginative understandings of the world. Imaginative Education may be described as a "cognitive tools" approach to learning; it is centrally concerned with employing in teaching the culturally based learning tools that come along with language to most effectively engage students' emotions and imaginations in learning. Cognitive tools (for example, story/narrative, jokes, metaphor, extremes of experience and limits of reality, and collections) are "little factories of understanding" (Hughes, 1988, p. 12); they are tools that leave students feeling something for what they are learning. These are tools that students use as language-users to make meaning in the world around them (Egan, 1997, 2005). By engaging them in shaping topics in the curriculum, imaginative educators integrate curriculum content with emotion and imagination.

Imaginative educators use "sets" of these tools to shape their lessons. Table A shows the three main sets of tools that teachers should employ in the Kindergarten-Grade 12 teaching context: the set that comes with the body (The Body's Tools⁷), the set that comes with orality (The Tools of Oral Language), and the set that comes with literacy (The Tools of Written Language). These are the same tools that teachers can employ with students as they independently study their in-depth topics; these are tools that engage students' emotions, offer ideas for avenues of study, deepen meaning, and support the memorability of what is learned (Egan, 1997, 2005).

The Body's Tools	The Tools of Oral Language	The Tools of Written Language
the senses	the story-form	transcendent qualities
emotional responses	mental imagery evoked from words	extremes and limits of reality
gesture	sense of mystery and puzzles	sense of wonder
sense of humour	jokes and humour	change of context
sense of musicality	formation of emotional attachments	role play
the sense of relation		creation of special places

Table 1. Cognitive Tools that can Support Imaginative and In-Depth Study

In-Depth Study within an Imaginative Pedagogy: The Learning in Depth Imaginative Ecological Education (LiD IEE) Model

The Learning in Depth (LiD) Imaginative Ecological Education (IEE⁸) approach is a model for in-depth study that may be of interest to ecological educators. Like other projects and “theme” or inquiry-based programs one finds in the field of ecological pedagogy, LiD IEE is locally or place-focused and student-directed. Unlike other programs or models, it has a much broader scope and is a cognitive tools-focused (and, thus, imagination-focused) model.

LiD IEE is designed to run from the grade or level at which the child begins, through to the end of his or her schooling. Ideally, participants work independently and with the support of teachers, parents, and peers, in studying a topic for their *entire* school careers. For one hour a week they explore their topic in whatever way they choose as part of the regular curriculum. They receive periodic feedback from teachers but are not formally graded on their work. Over time and with proper support, participants gain a depth of knowledge in relation to their topics that is unmatched by any other aspect of the curriculum. Among other things, students gain valuable research skills and insights into the nature of knowledge that are crucial to the kind of “critical thinking” and analytical capacities required to think differently about humankind and its relationship to the world.

The LiD IEE model is also one that stems from an imagination-focused pedagogy. The support and resources teachers employ are directly tied into the emotional and imaginative lives of the students. That is, they are cognitive tools-

focused. So, for example, one way to support students in their in-depth studies is to use these tools to prompt inquiry: *What songs have been written about your topic? What visual patterns relate to your topic? What people study your topic? What is mysterious about your topic?* and so on. Teachers can mix and match these tools—and, indeed, will want to allow students to use whatever tools they are most excited about—but the oral language set of cognitive tools will be most engaging with students in primary school who are not yet reading. For students who are also reading, the written language toolkit offers many options. All students can be encouraged to use the body’s toolkit as often as possible in investigating their topics. We can develop emotional connections with place when we seek to feel the world and understand it somatically—through our senses, yes, but importantly through our emotional responses, sense of musicality, and humour. (For more information on the principles/practices of IE or IEE, visit www.ierg.ca or www.ierg.ca/IEE)

The LiD IEE program is a model for in-depth learning that gives students a gift of time and space to learn something deeply; it offers an opportunity for some “slow pedagogy” within the typically “fast food” feel of school. There are, of course, other models of in-depth, project-based and inquiry-focused learning available that can offer students similar learning opportunities. It is my hope this article inspires readers to learn more about these and to consider how to make deep learning a part of ecological education, and how to support imaginative engagement in the process. Whether educators do, indeed, make space for imaginative and in-depth study is a question of value. As Michael Fullan (2007) articulates, some of the most important factors contributing to what we do or do not do in schools—the programs we adopt or not, the practices we embrace or not, the ways we teach and engage students with their world—are axiological ones including how we see ourselves as educators and what we consider the role of schools/education to be.

Providing Students Opportunities for In-Depth Study: A Question of Value

Egan (1999) argues that many of the disagreements we have in schools about how and what to teach stem from our underlying disagreements about the ultimate aim of schooling. That is, “we think with” different theories about schools and about what education is for that influence the meaning we make of different educational practices. *Is the long-term study of something like “mollusks” or “birds” good use of instructional time? Will it help students to get jobs? Is deep learning of a topic simply good for the mind? Will independent, self-directed inquiry support the development of the capacities of every child?* An in-depth program of study of the duration suggested in LiD IEE will likely provoke many questions and also concerns for educators; answering the questions may require the unearthing of deeply rooted beliefs and values.

Some questions may be practical or administrative in nature: For example, *how does one arrange for the continuation of the program from year to year? What*

happens to newly arriving students? What does the program look like in the context of typical secondary school settings? Other questions may be more philosophical and personal, relating to the role of the teacher and the kinds of pedagogical and personal relationships teachers form with their students. *How can teachers support students if they don't know anything in depth about the topics the students are studying? How can teachers assess if the students are getting it right?* Relationships between teachers and students transform. For example, the image of the teacher as “expert” no longer applies as the students themselves become the experts. Students who have limited success in regards to other aspects of the curriculum develop confidence in relation to their topics; they know more about their topic than teachers and peers (Egan & Mikulan, 2014). For some teachers this will be a welcome change in the classroom dynamic. For others, however, the idea of student-experts may lead to serious reconsideration of how the teaching process looks.

These are just a few of the kinds of questions and issues that may arise for teachers choosing to explore imaginative and in-depth study for their students. Rather than provide an exhaustive list of issues, I want to indicate that, depending on what teachers value most, they will find a program like LiD IEE, or some other in-depth project, more, or less, appealing. Therefore, consideration of teachers’ beliefs about the purpose of education is a crucial starting point for discussion when thinking about trying out any new educational programs or approaches.

Some Concluding Thoughts

I have tried to indicate how a press for coverage and a lack of “time” are barriers to ecological understanding. The never-ending push to get “through it all” means that students miss opportunities to develop their thinking skills and that they have no time to dwell on topics, to “digest” them, or to play with their meanings and implications. In a context set on “coverage,” we also miss opportunities for students to develop emotional connections with place or to experience connectedness through learning about place-based issues. The rapid firing of multiple topics at students with limited attention to their emotional engagement does not necessarily equate with learning. Moreover, exposure to information about ecological issues or problems does not necessarily support, at a deeper level, the kind of changes in cultural understanding ecological understanding requires. And it does not, as Stevenson (1997) argues, allow for the kinds of analytical and critical thinking skills, or thoughtfulness we require to address ecological issues.

In making a case for incorporation of imaginative and in-depth study within ecological education programs, I hope to have opened up a pedagogical space for discussion around depth of knowledge and imagination and their roles in the cultivation of ecological understanding. Depth of study may be seen as a gift of time and space for students; it is a gift that can help students to forge emotional bonds with a world that, due to a press for “coverage” in schools, they

may fail to engage with on a regular basis. In-depth study is also a gift because we hand over the control of learning to the students. The imaginative interests of students are now the forces directing the inquiry and shaping the educational experience; our role, as teachers, is to support these imaginative forays into learning and celebrate the expertise that can develop as a result.

Notes

- ¹ Throughout the article I use the term “ecological” rather than “environmental” education in order to emphasize relationships and context and, in particular, a place-focused approach.
- ² More information on Imaginative Ecological Education (IEE) is available at ierg.ca/iee, or see Judson (2010, 2015).
- ³ Learn more about the nature of “cognitive tools” here: <http://ierg.ca/teacher-resources/teacher-tips/>
- ⁴ Payne (2010) identifies the imagination as important to what he describes as a “reanimated version of eco-literacy” (p. 297). He argues that oral storytelling—along with other means of engaging imagination that include art, song, and poetry—is a means to enrich the visual dimensions of students’ “ecological literacy” which may, without such experiential and emotionally charged forms of engagement, distance them from the natural world. Payne describes how vivid and emotionally-charged images that can be evoked through words and sensuous engagement in the natural world can “reanimate” students’ sense of the world so that, in his words: “the connections of story, nature and place are spontaneously and sensuously experienced” (p. 297).
- ⁵ Stevenson (1997) does not indicate an exact duration but defines “in-depth” as a “sustained period of time.” By “authentic” Stevenson means that students are pursuing their own inquiry processes, and learning through the inquiry “knowledge that has an immediate social value in making a judgment on a specific issue that is real and meaningful to them” (p. 191).
- ⁶ For more information on Imaginative Education (IE), visit: www.ierg.ca
- ⁷ Egan (1997) suggests that we have “embodied minds”—despite the tools we acquire to make sense of the world as we learn language, the body always remains the primary means of mediating our experiences. When referring, thus, to “cognitive tools,” Egan is also referring to the engagement of the body and, importantly, the body’s emotional responses. The role of the imaginative educator is to engage the body’s tools in learning—along with others that come with language—so as to maintain the body’s role in meaning-making.
- ⁸ LiD IEE is an adaptation of the Learning in Depth, or LiD program, an educational initiative created by Egan (2010) and developed through the work of the Imaginative Education Research Group (IERG) at Simon Fraser University. LiD IEE is meant to be part of an imagination or cognitive tools-focused approach to teaching (ierg.ca/IEE).

Notes on Contributor

Dr. Gillian Judson is one of the Directors of the Imaginative Education Research Group (www.iERG.ca) and a Lecturer in the Faculty of Education at Simon Fraser University. Her published work and teaching show how we can routinely engage students' imaginations (pre-Kindergarten through graduate school) to ensure effective learning across the curriculum. She is particularly interested in sustainability and how an imaginative and ecologically sensitive approach to education can lead to a sophisticated ecological consciousness. Her most recent book is *Engaging Imagination in Ecological Education: Practical Strategies for Teaching* (Pacific Educational Press, 2015). **Contact:** gcj@sfu.ca

References

- Andersen, D. (2011). Community mapping: Putting the pieces together. *The Geography Teacher*, 8(1), 4-9.
- Ardoin, N. M. (2006). Toward an interdisciplinary understanding of place: Lessons for environmental education. *Canadian Journal of Environmental Education*, 11, 112-126.
- Blenkinsop, S. (2012). Four slogans for cultural change: An evolving place-based, imaginative and ecological learning experience. *Journal of Moral Education*, 41(3), 353-368.
- Derby, M., Blenkinsop, S., Telford J., Piersol, L., & Caulkins, M. (2013). Toward resonant, imaginative experiences in ecological and democratic education: A response to "Imagination and experience: An integrative framework." *Democracy & Education*, 21(2), 1-5.
- Duhn, I. (2012). Making 'place' for ecological sustainability in early childhood education. *Environmental Education Research*, 18(1), 19-29.
- Egan, K. (1988a). *Primary understanding: Education in early childhood*. New York: Routledge.
- Egan, K. (1988b). The origins of imagination and the curriculum. In K. Egan & D. Nadaner (Eds.), *Imagination and education* (pp. 91-127). New York: Teachers College Press.
- Egan, K. (1992). *Imagination in teaching and learning: The middle school years*. Chicago, IL: University of Chicago Press.
- Egan, K. (1997). *Educated mind: How cognitive tools shape our understanding*. Chicago, IL: University of Chicago Press.
- Egan, K. (1999). *Children's minds, talking rabbits, and clockwork oranges: Essays on education*. London, ON: The Althouse Press.
- Egan, K. (2005). *An imaginative approach to teaching*. San Francisco, CA: Jossey-Bass.
- Egan, K. (2010). *Learning in depth: A simple innovation that can transform schooling*. Chicago: University of Chicago Press.
- Egan, K. & Mikulan, P. (2014). *A curriculum innovation that builds students' expertise: Learning in depth*. Unpublished manuscript.
- Fettes, M. (2013). Imagination and experience: An integrative framework. *Democracy and Education*, 21(1), 1-11.
- Fullan, M. (2007). *The new meaning of educational change*. New York: Teachers College Press.
- Gruenewald, D. (2003a). Foundations of place: A multidisciplinary framework for place

- conscious education. *American Educational Research Journal*, 40(3), 619-654.
- Gruenewald, D. (2003b). The best of both worlds: A critical pedagogy of place. *Educational Researcher*, 32(4), 3-12.
- Gruenewald, D., & Smith, G. (Eds.) (2008). *Place-based education in the global age: Local diversity*. Abingdon, UK: Routledge.
- Holt, M. (2005). The slow school: An idea whose time has come? In M. Stone, Z. Barlow, & F. Capra (Eds.), *Ecological literacy: Educating our children for a sustainable world* (pp. 56-66). San Francisco, CA: Sierra Club Books.
- Hughes, T. (1988). Myth and education. In K. Egan & D. Nadaner (Eds.), *Imagination and education* (pp. 30-44). New York: Teachers College Press.
- Jardine, D. (1996). "Under the tough old stars": Meditations on pedagogical hyperactivity and the mood of environmental education. *Canadian Journal of Environmental Education*, 1, 47-55.
- Judson, G. (2010). *A new approach to ecological education: Engaging students' imaginations in their world*. New York: Peter Lang.
- Judson, G. (2014). Re-Imagining sustainability education: Emotional and imaginative engagement in learning. In F. Kagawa & D. Selby (Eds.) *Sustainability frontiers: Critical and transformative voices from the borderlands of sustainability education* (pp. 205-220). Farmington Hills, MI: Barbara Budrich Publishers.
- Judson, G. (2015). *Engaging imagination in ecological education: Practical strategies for teaching*. Vancouver, BC: Pacific Educational Press.
- Orr, D. W. (2005). Place and pedagogy. In M. K. Stone, & Z. Barlow (Eds.), *Ecological literacy: Educating our children for a sustainable world* (pp. 85-95). San Francisco, CA: Sierra Club Books.
- O'Sullivan, E., & Taylor, M. M. (2004). *Learning toward an ecological consciousness: Selected transformative practices*. New York: Palgrave Macmillan.
- Payne, P. (2010). Remarkable-tracking, experiential education of the ecological imagination. *Environmental Education Research*, 16(3-4), 295-310.
- Pedaste, M., de Jong, T., Sarapuu, T., Pksoot, J., van Joolingen, W. & Giemza, A. (2013). Investigating ecosystems as a blended learning experience. *Science*, 1(6140), 1537-1538.
- Piersol, L. (2010). Tracking self into place. *Canadian Journal of Environmental Education*, 15, 198-209.
- Piersol, L. (2014). Listening place. *Australian Journal of Outdoor Education*, 17(2), 43-53.
- Smith, G. (1995). The Petrolia school: Learning to live in place. *Holistic Education Review*, 8(1), 44-52.
- Smith, G. (2002). Place-based education: Learning to be where we are. *Phi Delta Kappan*, 83, 584-594.
- Smith, G. (2007). Place-based education: Breaking through the constraining regularities of public school. *Environmental Education Research*, 13(2), 189-207.
- Smith, G., & Williams, D. R. (1999). *Ecological education in action: On weaving education, culture, and the environment*. Albany, NY: State University of New York Press.
- Sobel, D. (1996). *Beyond ecophobia: Reclaiming the heart in nature education*. Great Barrington, MA: The Orion Society and The Myrin Institute.
- Sobel, D. (1998). Mapmaking from the inside out: The cartography of childhood. *Clearing*, 103, 14-19.

- Sobel, D. (1999). Beyond ecophobia: Reclaiming the heart in nature education. *Nature Study*, 49(3-4). Retrieved from http://arts.envirolink.org/arts_and_education/DavidSobel1.html
- Sobel, D. (2004). *Place-based education: Connecting classrooms and communities*. Great Barrington, MA: The Orion Society and The Myrin Institute.
- Stevenson, R.B. (1997). Developing habits of environmental thoughtfulness through the in-depth study of select environmental issues. *Canadian Journal of Environmental Education*, 2, 183-201.
- Stone, M. K., & Barlow, Z. (Eds.). (2005). *Ecological literacy: Educating our children for a sustainable world*. San Francisco, CA: Sierra Club Books.
- Traina, F. (1995). What is bioregionalism? In F. Traina & S. Darley-Hill (Eds.), *Perspectives in bioregional education* (pp. 1-12). Troy, OH: North American Association for Environmental Education.
- Vygotsky, L. (1962). *Thought and language*. Cambridge, MA: MIT Press.
- Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Waters, A. (2005). Fast-food values and slow-food values. In M. Stone, Z. Barlow, & F. Capra (Eds.), *Ecological literacy: Educating our children for a sustainable world* (pp. 49-55). San Francisco, CA: Sierra Club Books.
- Woodhouse, J. & Knapp, C. (2000). *Place-based curriculum and instruction: Outdoor and environmental education approaches*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. Retrieved from ERIC Database (ED448012).